I CLAIM:

1. A micro-electromechanical valve assembly for controlling a flow of fluid through a fluid supply channel defined in a wafer substrate and drive circuitry layers positioned on the wafer substrate and terminating at a fluid supply opening, the valve assembly comprising;

an elongate actuator that is anchored at one end to the wafer substrate to be in electrical contact with the drive circuitry layers; and

a closure member that is mounted on an opposite end of the elongate actuator, the actuator being configured to receive an electrical signal from the drive circuitry layer to displace the closure member between a closed position in which the closure member covers the fluid supply opening and ink is inhibited from flowing through the fluid supply channel and an open position, wherein

the elongate actuator is shaped so that, in a rest condition, the actuator encloses an arc, the actuator including a heating portion that is capable of being heated on receipt of the electrical signal to expand, the heating portion being configured so that, when the portion is heated, the resultant expansion of the portion causes the actuator to straighten at least partially and a subsequent cooling of the portion causes the actuator to return to its rest condition thereby displacing the closure between the closed and open positions.

2. A valve assembly as claimed in claim 1, in which each actuator includes a body portion that is of a resiliently flexible material having a coefficient of thermal expansion which is such that the material can expand to perform work when heated, the heating portion being positioned in the body portion and defining a heating circuit of a suitable metal.

3. A valve assembly as claimed in claim 2, in which the heating circuit includes a heater and a return trace, the heater being positioned proximate an inside edge of the body portion and the return trace being positioned outwardly of the heater, so that an inside region of the body portion is heated to a relatively greater extent with the result that the inside region expands to a greater extent than a remainder of the body portion.

4. A valve assembly as claimed in claim 3, in which a serpentine length of said suitable material defines the heater.

5. A valve assembly as claimed in claim 3, in which the body portion is of polytetrafluoroethylene and the heating circuit is of copper

6. A valve assembly as claimed in claim 1, in which each actuator defines a coil that partially uncoils when the heating portion expands.